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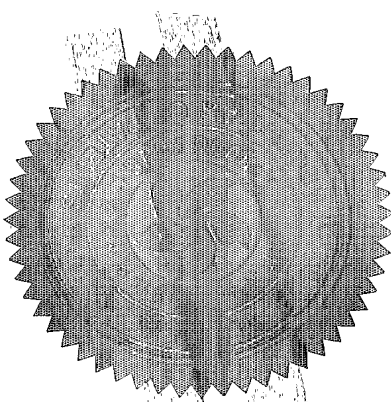
PATENTS ORDINANCE

Chapter 514

Laws of the Hong Kong Special Administrative Region

The attached is a true copy of the Short-term Patent Application No. 04105261.7, which was deemed to be withdrawn on 25 September 2004. The accorded filing date is 19 July 2004.

Dated this 22nd day of February 2005.



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Intellectual Property Examiner
for Registrar of Patents

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Patents Ordinance (Cap. 514)

Patents (General) Rules (Cap. 514C)

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- Either Chinese or English can be used as the language of proceedings. Please complete this form in English unless otherwise stated.
- This form must be signed and dated.
- If there is not enough space for any part on this form, please continue on an additional sheet. Number each additional sheet and state the number of additional sheets in Part 11(a).
- Please enquire through the following means:
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01 Your reference	9874977:P/D:HALE
02 Details of applicant (If the name of the applicant is not in Roman letters or in Chinese, please include a transliteration in Roman letters.)	
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Name in Chinese (if applicable)	
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Block A-C, 4/F., Wing Hin Factory Building 31-33 Ng Fong Street San Po Kong Kowloon Hong Kong SAR China	

Note 1 You must state the title of the invention in both English and Chinese.

<p>03 Title of invention (Note 1)</p> <p>English</p> <p>Chinese</p>	<p>Hair Styling Apparatus</p>
<p>04 Use of micro-organisms</p> <p>(a) Does the invention require the use of a micro-organism for its performance?</p> <p>(b) If you have marked "Yes", please indicate whether the micro-organism is available to the public at the date of filing of the application; and whether the micro-organism is described in the application or the specification of the patent in such a manner as to enable the invention to be performed by a person skilled in the art.</p> <p>(c) If you have marked "No" in both boxes in (b), please give the following details:</p> <p>Name and address of the depositary institution where a culture of the micro-organism is deposited</p> <p>Date of deposit (DD-MM-YYYY)</p> <p>Accession no. of the deposit</p> <p>(section 73 and Schedule 1, Patents (General) Rules, which can be viewed at www.info.gov.hk/ipd)</p>	<p><i>Please mark the appropriate box</i></p> <p><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</p> <p><input type="checkbox"/> Yes <input type="checkbox"/> No</p> <p><input type="checkbox"/> Yes <input type="checkbox"/> No</p> <p>Name</p> <p>Address</p>

<p>05 Details of international application If the short-term patent application is based on</p> <p>(a) International application no.</p> <p>(b) International filing date (DD-MM-YYYY)</p> <p>(c) International publication no.</p> <p>(d) International publication date (DD-MM-YYYY)</p> <p>(e) Date of entry into the national phase in the People's Republic of China</p> <p>or</p> <p>Date of issuance of the National Application Notification by the State Intellectual Property Office, People's Republic of China</p> <p>(f) Application no. of the Chinese patent application (if known)</p> <p>(section 125, Patents Ordinance and section 78, Patents (General) Rules, which can be viewed at www.info.gov.hk/ipd)</p>	<div></div> <div></div> <div></div> <div></div> <p>Please mark the appropriate box and enter the date in the space provided</p> <p><input type="checkbox"/> (DD-MM-YYYY)</p> <p><input type="checkbox"/> (DD-MM-YYYY)</p> <div></div>
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Note 2 A claim of earlier application date may be made under:

(a) section 116, Patents Ordinance for divisional application;

(b) section 55, Patents Ordinance for new application filed on court order upon determination of right to patent after grant.

The Patents Ordinance can be viewed at www.info.gov.hk/ipd.

<p>06 Details of earlier application If the application is divided or derived from an earlier Hong Kong SAR application (<i>Note 2</i>)</p> <p>(a) Section under which an earlier application is claimed</p> <p>(b) Earlier application no.</p> <p>(c) Earlier application filing date (DD-MM-YYYY)</p>	<p>Please mark the appropriate box</p> <p>Patents Ordinance</p> <p><input type="checkbox"/> Section 116 <input type="checkbox"/> Section 55</p> <div></div> <div></div>
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07 Details of priority application

If a statement of claim of priority under section 111, Patents Ordinance is made, please provide a statement and details in the space below:

(sections 58(5)(c), 69, Patents (General) Rules, which can be viewed at www.info.gov.hk/ipd)

Statement

Country/Territory/Area	Priority application no.	Priority application filing date (DD-MM-YYYY)

Note 3 If the applicant is not the sole inventor or the applicants are not the joint inventors, a statement identifying the inventor(s) and indicating the derivation of the applicant's entitlement to exercise his right to the short-term patent shall be made on Form P6A (section 113(2)(c), Patents Ordinance and section 65, Patents (General) Rules, which can be viewed at www.info.gov.hk/ipd).

08 Details of inventor (If the name of the inventor is not in Roman letters or in Chinese, please include a transliteration in Roman letters.)
(Note 3)

Name

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Name in Chinese (if applicable)

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Note 4 Please refer to section 109, Patents Ordinance and sections 58(5)(e), 58(5)(f), 70, Patents (General) Rules for claim of non-prejudicial disclosure. The Patents Ordinance and Patents (General) Rules can be viewed at www.info.gov.hk/ipd.

09 Non-prejudicial disclosure

If the applicant is making a claim regarding non-prejudicial disclosure under section 109, Patents Ordinance, please provide a statement giving details relating to such disclosure.

(Note 4)

Statement

Name and place of the exhibition or meeting	Opening date of the exhibition or meeting (DD-MM-YYYY)	Date of first disclosure (DD-MM-YYYY)

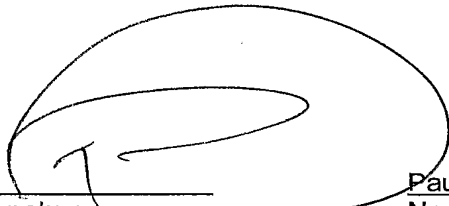
<p>10 If a request for deferral of grant under section 119, Patents Ordinance is required, please mark the box and enter the period of such deferral. The Patents Ordinance can be viewed at www.info.gov.hk/ipd. <i>(The period of deferral should not exceed 12 months.)</i> <i>(If the box is not marked, it will be taken that deferral of grant is not requested.)</i></p>	<input checked="" type="checkbox"/> Request for deferral of grant up to <u>19 July 2005</u> (DD-MM-YYYY)
<p>11 Enter the no. of sheets for any of the following documents you are filing with this form</p>	<p style="text-align: center;">No. of sheets</p>
(a) Additional sheet(s) attached to this form	
(b) Description	10
(c) Claim(s)	2
(d) Drawing(s)	3
(e) Abstract <i>(in both English and Chinese)</i>	1 (in English)
(f) Priority document(s)	
(g) Translation of the priority document(s)	
(h) Search report	
(i) Translation of the search report	
(j) In the case of an international application, copy of :	
(i) the international application as published by the International Bureau	
(ii) the international search report	
(iii) translation as published by the State Intellectual Property Office, People's Republic of China	
(iv) publication of information by the State Intellectual Property Office, People's Republic of China concerning the international application	
(k) Statement of inventorship on Form P6A in accordance with section 113(2)(c), Patents Ordinance and section 65, Patents (General) Rules	
(l) Others <i>(please specify)</i>	

Note 5 An address for service in Hong Kong, China must be supplied.

12 Address for service in Hong Kong, China (Note 5)	
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Telephone no.	2825 9336 (Hans Lee)
Facsimile no.	2810 0431
E-mail address	hans.lee@deacons.com.hk

Note 6 If you are an agent, an address in Hong Kong, China where you reside or carry on your business activities must be supplied.

13 Agent's address (Note 6)	5 th Floor Alexandra House 16-20 Chater Road Central Hong Kong SAR China
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14 Signature		
 Signature	Paul Davies, Patent Attorney Name and Official Capacity of Signatory	19 July 2004 Date (DD-MM-YYYY)

HAIR STYLING APPARATUS

FIELD OF THE INVENTION

The present invention relates to hair care and/or styling means and
5 apparatus. More particularly, this invention relates to hair styling means and
apparatus such as hair curlers and hair straighteners. More specifically, although
of course not solely limited thereto, this invention relates to hair styling apparatus
with detachable styling heads.

BACKGROUND OF THE INVENTION

10 Hair care and/or styling means and/or apparatus are widely used in hair
applications such as hair styling and hair treatment. Hair styling apparatus
typically comprises hair curlers and hair straighteners. Conventional hair
straighteners typically comprise a tong-type apparatus with a pair of pivotable
arms formed with a pair of opposing heated styling heads. During hair
15 straightening, the pair of heated styling hairs is pressed together and dragged
along the length of the hair whereby the engaged hair is straightened by heat and
tension.

Conventional hair curlers typically comprise a heated curling head and a
pivotable clamping arm for clamping hair to be curled onto the heated curling
20 head. During hair curling, the heated styling head is wrapped about the hair
whereby hair is curled by heat and tension.

For maximal thermal efficiency for optimal hair styling, the styling heads of the styling apparatus are preferably directly heated with built-in heating means disposed proximal to the styling heads. However, this also means that each styling apparatus is typically suitable for a single styling application or purpose
5 only.

OBJECT OF THE INVENTION

Accordingly, it is an object of this invention to provide hair styling apparatus with styling heads having built-in heating means while allowing a plurality of styling applications. At a minimum, it is an object of this invention to provide the public
10 with a useful choice of a hair care apparatus.

SUMMARY OF THE INVENTION

According to the present invention, hair styling apparatus comprising a pair of pivotally connected handles and a pair of detachable styling members which are connected to the un-pivoted ends of said handles, each said styling member
15 comprising a main housing, a styling roller and an electrical adaptor, said styling roller being roatably supported on said main housing and being rotatable about a longitudinal axis which is substantially orthogonal to the pivotal axis joining said handles, said electrical adaptor and said handle including co-operative electrical interfacing means so that operating power for said heating means of said styling
20 member can be supplied from said handle to said styling member via said electrical interfacing means, wherein said styling roller being rotatable relative to main housing and said electrical adaptor.

Preferably, said pair of detachable styling members comprising cooperative styling rollers with styling surfaces which are rotate relative to each other for continuous hair styling.

5 Preferably, each said styling roller comprising a salient styling surface which is rotatable about a longitudinal axis, said longitudinal axis being substantially orthogonal to the pivotal axis joining said handles, said handles being pivotally movable between a hair clamping position at which position said styling members being in compressive contact and a releasing position at which position said styling members being separated, the salient styling surfaces of said styling
10 rollers being complementary so that, when said handles being held together in said hair clamping position during hair styling application, the salient surfaces of said styling rollers being in complementary engagement such that hair is clamped between said styling rollers and can be styled by said complementary salient surfaces of said styling rollers when said styling rollers are moved along said hair.

15 Preferably, said styling roller comprising a substantially cylindrical barrel with a hair styling surface on the outside of said barrel for cooperative hair styling by the pair of hair styling roller, said styling surface being substantially symmetrical about said longitudinal axis about which said styling roller being freely rotatable.

20 Preferably, said electrical adaptor comprising rotary-type electrical contacts for interconnection between said heating means and the power supply.

Preferably, said electrical adaptor comprising a bayonet-type connector with a pair of axially extending rigid electrodes, said handle comprising a receptacle at its un-pivoted end for receiving said bayonet-type connector, said

electrical adaptor further comprising part of a rotary-type connector on the side away from said bayonet-type connector.

Preferably, said rotary-type connector comprises a bush-and-bracket arrangement, said bracket being disposed on said electrical adaptor and said
5 bush being disposed on said styling roller.

BRIEF DESCRIPTION OF THE DRAWINGS

Preferred embodiments of the present invention will be explained in further detail below by way of examples and with reference to the accompanying drawings, in which:-

10 Fig. 1 is a longitudinal cross-sectional view showing a preferred example of a hair styling apparatus of the present invention with the styling members detached,

Fig. 1A is a transversal cross-section of the apparatus of Fig. 1 at section line AA with the styling rollers mounted,

15 Fig. 2 a longitudinal cross-sectional view showing a hair straightener with a pair of detachable straightening heads illustrating a first preferred embodiment of the present invention,

Fig. 2A is a transversal cross-section of the styling apparatus of Fig. 2 at section line B-B,

Fig. 3 is a longitudinal cross-sectional view showing a hair curler with a pair of detachable curling heads illustrating a second preferred embodiment of the present invention,

Fig. 3A is a transversal cross-section of the apparatus of Fig. 3 at section
5 line B-B,

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

Referring firstly to Figs. 1 to 3, there are shown preferred examples of hair styling apparatus of the present invention.

In Fig. 1, a generalized hair styling apparatus of the present invention is
10 shown. The hair styling apparatus **100** comprises a handle **200** and a pair of detachable styling members **300**. The handle is a tong-typed handle comprising a pair of arms pivoted near their respective ends. The handle is configured so that a user can configure the handle in its "open" and "close" configurations respectively so that tresses of hair can be released and engaged by the pair of styling heads.
15 The pair of arms are preferably ergonomically shaped and styled for comfortable use of a user. Each of the arms comprises a hollow main housing **210** so that electrical installations for styling operation can be accommodated on or within the hollow compartments defined by the main housing. An electrical cord **220** is connected to one end of the handle for supplying operating power to the electrical
20 parts of the styling apparatus. A master electrical switch **230** is connected in series between the electrical parts and the main power supply and is mounted on the main housing. The master electrical switch can be a conventional electrical switch such as a slide switch or a rocker switch. The pivotal hinge **240** joining the

arms may be spring biased so that the arms will return to the spring neutral configuration when a user no longer holds the arms together. A pair of lock switches **250** is provided near the respective un-pivoted ends of the arms for interfacing and/or connection to the styling member **300**. The lock switch can be

5 conventional lock switches known to persons skilled in the art for making secured electrical and mechanical connection between the styling members **300** and the handle **200**.

Each styling member **300** comprises a main housing **310**, a styling roller **320** and an electrical adaptor. The main housing **310** holds the electrical adapter

10 **330** and the styling roller **320** with the styling roller freely rotatable relative to the main housing. The main housing is adapted so that, when the styling member is mounted on the main housing, a substantial circumferential portion of the styling roller is covered while a minor circumferential or transversal portion is exposed along its length at the region opposite the other styling member when mounted for

15 operation. This exposed minor transversal portion of the styling member is adapted for cooperation with the exposed surface of the corresponding styling member for hairstyling so that a user's hair can be compressively held between the pair of exposed styling surfaces of the styling members during normal styling operation. The major circumferential or transversal portion of the styling roller is

20 covered at least along a substantial portion of its length to alleviate the risk of adverse or inadvertent contact to a user's hand or scalp, since the rollers are likely to be hot.

The styling roller **320** is mounted on the main housing at its longitudinal ends and comprises a substantially hollow cylindrical body with an outer styling

surface **321**. The styling roller is rotatable, preferably freely rotatable, about its longitudinal axis so that, when tresses of hair user are engaged between a corresponding pair of styling members during styling operation, the styling apparatus can be moved along the length of the hair to shape a substantial length
5 of hair without un-necessary frictional tension. The styling roller is mounted on the main housing and is supported by a pair of suspension means near its longitudinal ends for smooth relative rotation. The suspension means in the present example is a ring-shaped bush **322**, although other appropriate suspension means can also be used.

10 The electrical heater **330** is disposed inside the hollow roller body and adjacent, and preferably immediately adjacent, the outer styling surface so that the heat generated by the electrical heater can be more efficiently transmitted to the outer styling surfaces **321**. The electrical heater can be a resistive heater, an infra-red heater or other appropriate heaters. For more efficient heated hair
15 styling, the styling roller is preferably made of a thermally conductive material such as copper, aluminium, nickel plated steel and the like. The electrical heater **330** is connected to a pair of rotary-type connectors for making electrical connection with a corresponding pair of electrodes on the electrical adaptor and therefore the power supply. The rotary-type connector in the present example
20 comprises a pair of longitudinally displaced bushes or conductive rings **340**. The pair of conductive rings is coaxially mounted on an insulated base **350** which is in turn mounted to a longitudinal end of the styling roller. The bushes can be made of, for example, copper, graphite and the like.

The electrical adaptor provides electrical interconnection between the power supply and the electrical heater and also serves as a mechanical fastener for holding the styling member onto the handle. In the present example, the electrical adaptor comprises a bayonet type connector 360 with a pair of rigid electrodes **370** extending axially away from an insulated base **380** which is attached to an axial end of the main housing **310** of the styling member. To provide electrical connection between the pair of electrodes and the lead-wire of the electrical heater so that the electrical heater can obtain operating power while the styling roller is rotating, a pair of conductive brackets **390** is attached to the main housing of the styling member to cooperate with the conductive rings to complete a rotary-type electrical connection. As can be seen from the transversal cross-sectional view of Fig. 1A, one end of the bracket **390** is attached to the main housing and the lead-wire to the electrode while the other end, the free end, is shaped to conform with the shape of the conductive ring. The bracket **390** is preferably made of a strong resilient conductive material so that the curved end of the bracket will be constantly in compressive with the conductive ring.

The insulated base **380** and the pair of rigid electrodes **370** of the electrical adaptor together form a bayonet-type plug which form a secure connection with the handle when properly inserting into to a correspondingly shaped receptacle on the free, un-pivoted, end of the handle. The base of the receptacle **260** comprises a pair of conductive sockets for providing snap-fit electrical connection between the power wire and the electrodes of the styling members.

Referring to Figs. 2 to 2A, there is shown a hair straightener **110** illustrating a first preferred embodiment of the present invention. The hair straightener

comprises a handle which is identical to that shown in Fig. 1 and a pair of elongated detachable styling members as described above. Specifically, the styling member **300** comprises a straightening roller **320** having a substantially hollow and cylindrical body with a straightening outer surface which is substantially flat and smooth for hair straightening. As can be seen from Fig. 2, the styling surfaces of the straightening rollers are in contiguous contact when the handle is in its "closed" configuration which is adapted for hair styling.

Referring to Figs. 3 and 3A, there is shown a hair curler **120** illustrating a second preferred embodiment of the present invention. The hair curler comprises a handle which is identical to that shown in Fig. 1 and a pair of elongated detachable styling members as described above. Specifically, the styling member comprises a curler roller with a substantially hollow and cylindrical body on which a salient hair curling surface is formed. As shown in Fig. 3A, the salient surface on the curling roller comprises a plurality of circumferentially disposed and radially protruding curling teeth which taper away from the longitudinal axis of the curling roller. The curling teeth on the pair of curling heads are substantially complementary so that the protruding teeth of one curling head will be received substantially within the trough between adjacent teeth on the corresponding curling head.

It will be appreciated that the same numerals have been used to represent the same, equivalent or common parts wherever appropriate as the embodiments comprise many common parts.

While the present invention has been explained by reference to the examples or preferred embodiments described above, it will be appreciated that

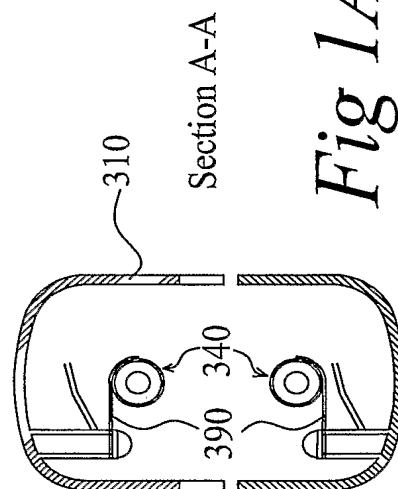
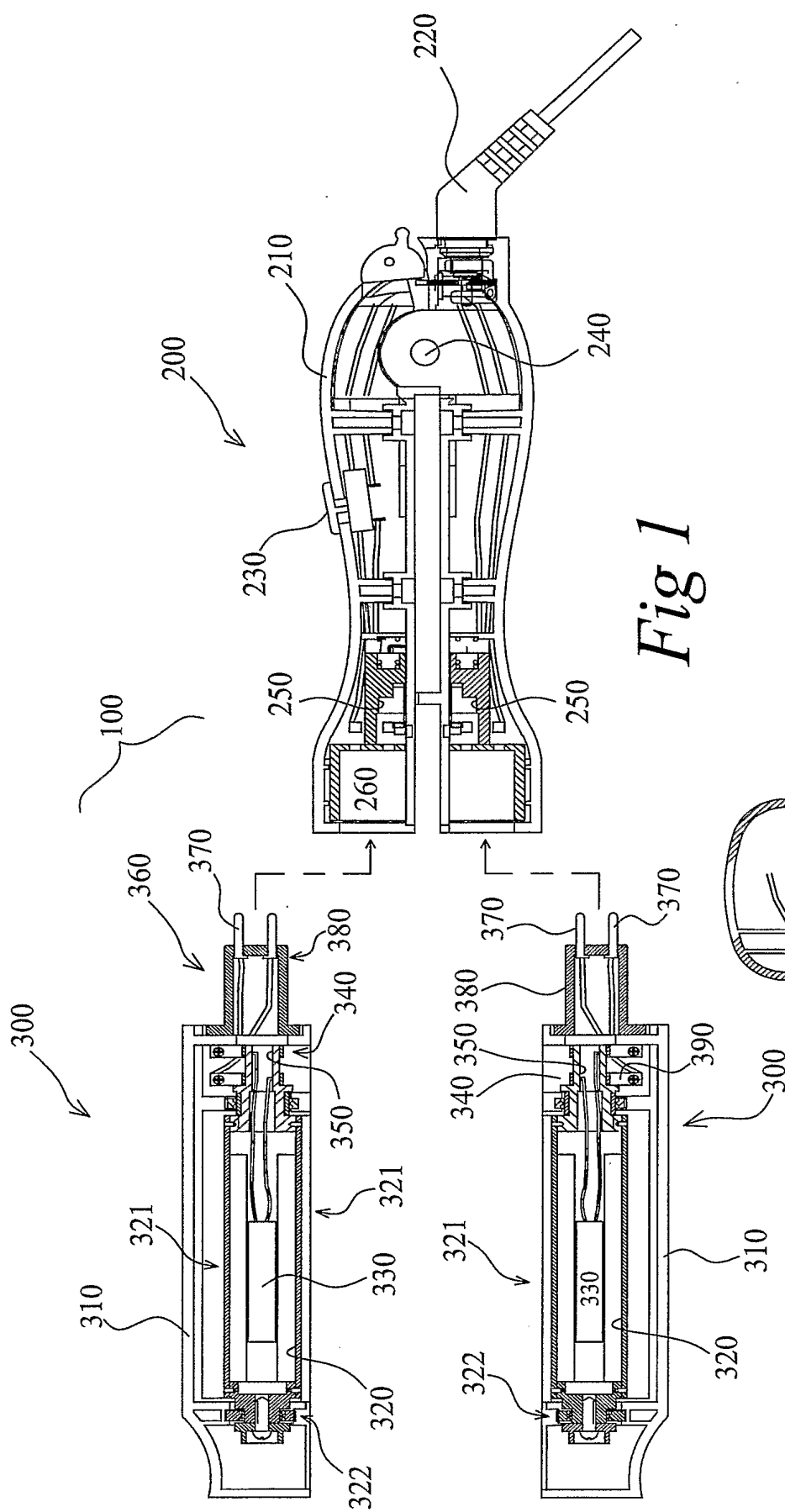
those are examples to assist understanding of the present invention and are not meant to be restrictive. The scope of this invention should be determined and/or inferred from the preferred embodiments described above and with reference to the Figures where appropriate or when the context requires. In particular, variations or modifications which are obvious or trivial to persons skilled in the art, as well as improvements made thereon, should be considered as falling within the scope and boundary of the present invention. For the sake of brevity, same reference numerals are used for parts with identical or substantially identical functions or features in the Figures.

10 Furthermore, while the present invention has been explained by reference to hair straightener and hair curlers, it should be appreciated that the invention can apply, whether with or without modification, to other hair care apparatus without loss of generality.

CLAIMS

1. Hair styling apparatus comprising a pair of pivotally connected handles and a pair of detachable styling members which are connected to the un-pivoted ends of said handles, each said styling member comprising a main housing,
5 a styling roller and an electrical adaptor, said styling roller being roatably supported on said main housing and being rotatable about a longitudinal axis which is substantially orthogonal to the pivotal axis joining said handles, said electrical adaptor and said handle including co-operative electrical interfacing means so that operating power for said heating means of said
10 styling member can be supplied from said handle to said styling member via said electrical interfacing means, wherein said styling roller being rotatable relative to main housing and said electrical adaptor.
2. Hair styling apparatus according to Claim 1, wherein said pair of detachable styling members comprising cooperative styling rollers with styling surfaces
15 which are rotate relative to each other for continuous hair styling.
3. Hair styling apparatus according to Claim 2, wherein each said styling roller comprising a salient styling surface which is rotatable about a longitudinal axis, said longitudinal axis being substantially orthogonal to the pivotal axis joining said handles, said handles being pivotally movable between a hair
20 clamping position at which position said styling members being in compressive contact and a releasing position at which position said styling members being separated, the salient styling surfaces of said styling rollers being complementary so that, when said handles being held together in said

- hair clamping position during hair styling application, the salient surfaces of said styling rollers being in complementary engagement such that hair is clamped between said styling rollers and can be styled by said complementary salient surfaces of said styling rollers when said styling rollers are moved along said hair.
- 5
4. Hair styling apparatus according to Claim 2, wherein said styling roller comprising a substantially cylindrical barrel with a hair styling surface on the outside of said barrel for cooperative hair styling by the pair of hair styling roller, said styling surface being substantially symmetrical about said longitudinal axis about which said styling roller being freely rotatable.
- 10
5. Hair styling apparatus according to Claim 1, wherein said electrical adaptor comprising rotary-type electrical contacts for interconnection between said heating means and the power supply.
6. Hair styling apparatus according to Claim 1, wherein said electrical adaptor comprising a bayonet-type connector with a pair of axially extending rigid electrodes, said handle comprising a receptacle at its un-pivoted end for receiving said bayonet-type connector, said electrical adaptor further comprising part of a rotary-type connector on the side away from said bayonet-type connector.
- 15
7. Hair styling apparatus according to Claim 6, wherein said rotary-type connector comprises a bush-and-bracket arrangement, said bracket being disposed on said electrical adaptor and said bush being disposed on said styling roller.
- 20



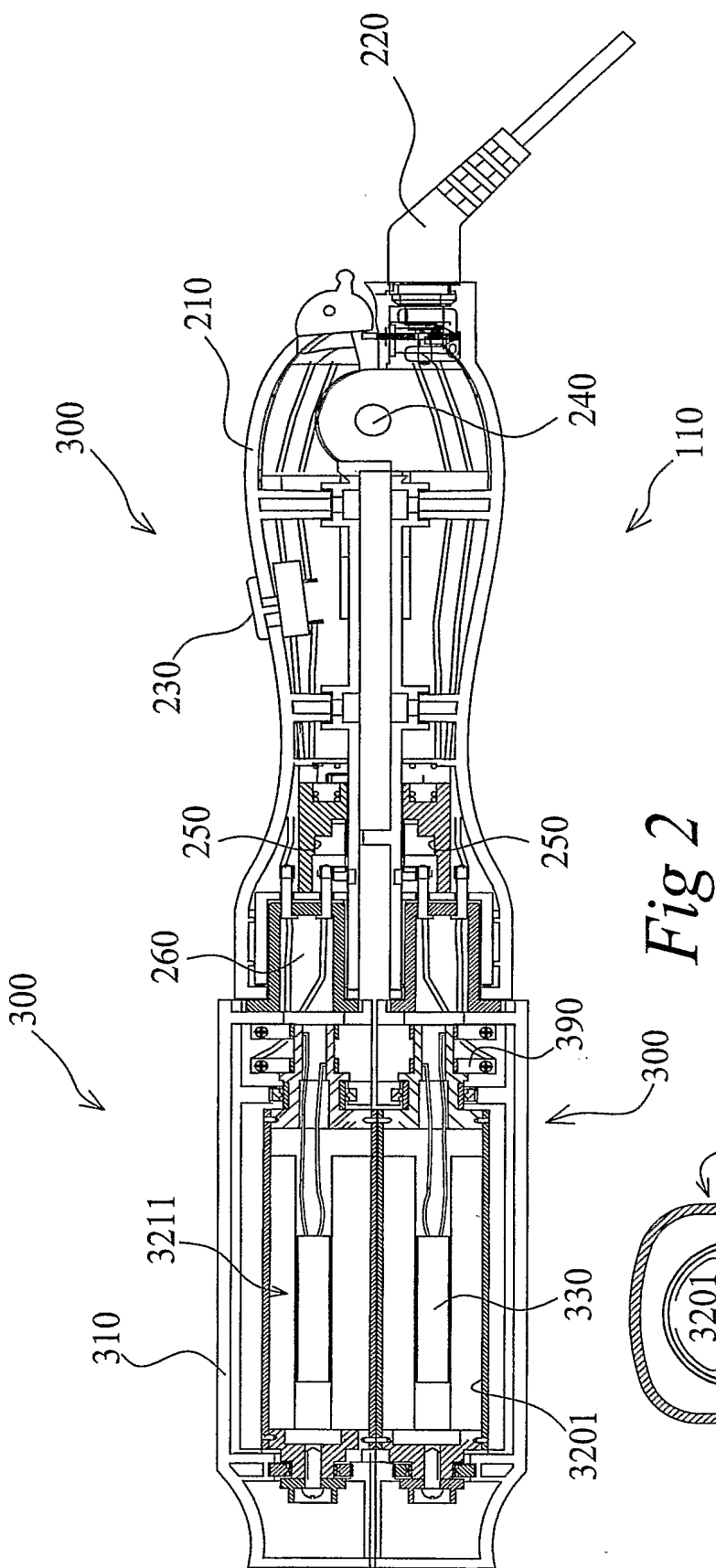


Fig 2

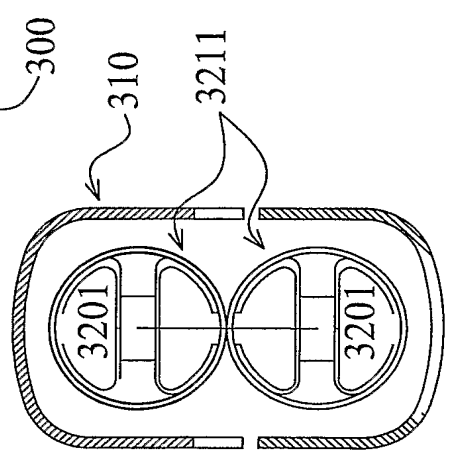


Fig 2A

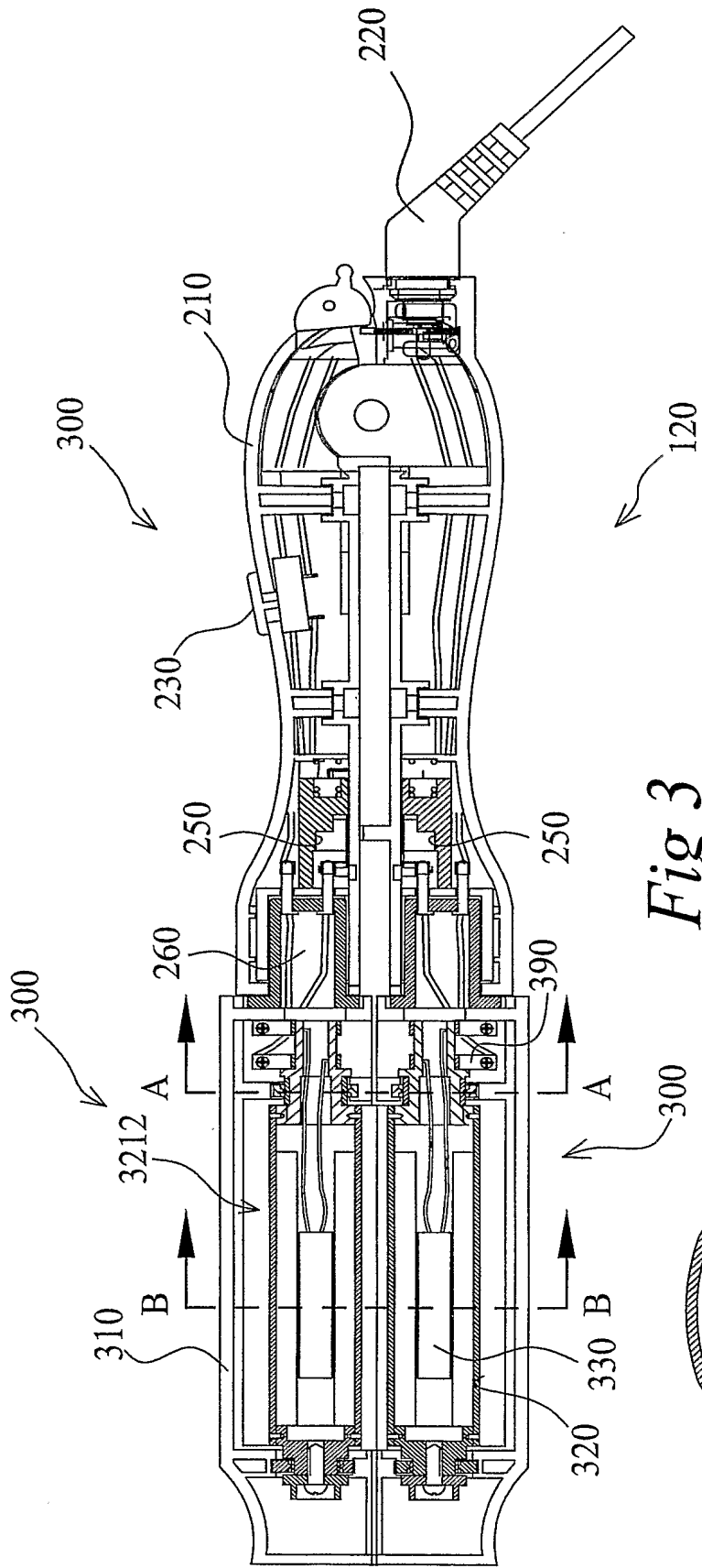


Fig 3

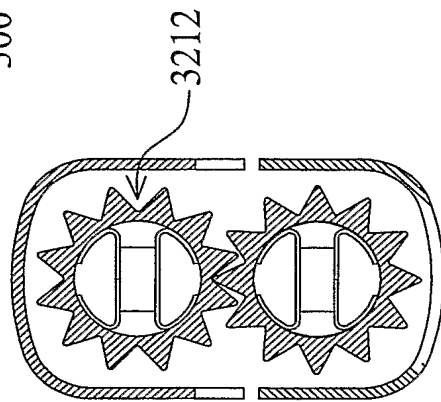


Fig 3A

HAIR STYLING APPARATUS

ABSTRACT

Hair styling apparatus comprising a pair of pivotally connected handles and
5 a pair of detachable styling members which are connected to the un-pivoted ends
of said handles, said styling member comprising a main housing, a styling roller
and an electrical adaptor, said styling roller being roatably supported on said main
housing and being rotatable about a longitudinal axis which is substantially
orthogonal to the pivotal axis joining said handles, said electrical adaptor and said
10 handle including co-operative electrical interfacing means so that operating power
for said heating means of said styling member can be supplied from said handle
to said styling member via said electrical interfacing means, wherein said styling
roller being rotatable relative to said electrical adaptor.